Mechanical Engineering and Biomedical Engineering

September 2020 (For students entering Year 1 in September 2018)

### Year 2

#### Term A
- AM 2270A: Applied Mathematics for Engineering II
- BME 3201A: Fundamentals of Biomedical Engineering Design
- MME 2202A: Mechanics of Materials
- MME 2204A: Thermodynamics I
- MME 2259A: Product Design and Development
- MME 2260A: Industrial Materials
- Writ 2130F: Building Better (Communication) Bridges

#### Term B
- AM 2276B: Applied Mathematics for Electrical & Mechanical Eng. III
- MME 2200S: Engineering Shop Safety Training
- MME 2221B: Computational Methods for Mechanical Engineers
- MME 2213B: Engineering Dynamics
- MME 2237B: Introduction to Fluid Mechanics and Heat Transfer
- SS 2143B: Applied Statistics and Data Analysis for Engineers

### Year 3

#### Term A
- Biol 1001A: Biology for Sciences I
- ECE 3374A: Introduction to Electronics for Mechanical Engineering
- MME 3303A: Fluid Mechanics II
- MME 3379A: Materials Selection
- MME 3381A: Kinematics and Dynamics of Machines

#### Term B
- Biol 1002B: Biology for Sciences II
- MME 3307B: Heat Transfer II
- MME 3350B: System Modelling and Control
- MME 3360B: Finite Element Methods in Mechanical Engineering
- MME 3380B: Mechanical Components Design

One 0.5-credit non-technical elective*

### Year 4

#### Term A
- Biochem 2280A: Biochemistry and Molecular Biology
- BME 3301A: Neural Systems Engineering
- ECE 4455A: Biomedical Systems Analysis
- Physiol 2130: Human Physiology

One 0.5-credit Biomedical Science technical elective

One 0.5-credit Healthcare non-technical elective

#### Term B
- BME 3303B: Cellular Systems Engineering
- MME 4469B: Biomechanics of the Musculoskeletal System
- Physiol 2130: Human Physiology

Two 0.5-credit Biomedical Science electives

One 0.5-credit Healthcare non-technical elective

One 0.5-credit Open elective (taken in either term)**

### Non-technical Electives

Students are required to complete 1.5 credits of non-technical electives as part of the program.

**The first 0.5 credit can come from the approved non-technical elective list (https://www.eng.uwo.ca/undergraduate/upper-year/electives.html).

b) The remaining 1.0 credits must come from the following Healthcare Non-technical Elective list.

### Healthcare Non-technical Electives

- Anthropology 2290F/G: Cultures of Health and Healing
- Economics 2169F/G: Economics of Health Care
- History 2195A/B: Epidemiology in North America
- Law 3101A/B: Healthcare Law
- Philosophy 2071E: Biomedical Ethics
- Philosophy 2072F/G: Bioethics and Disability
- Philosophy 2715F/G: Health Care Ethics
- Political Science 2276F/G: The Politics of Health Care
- Religious Studies 2239F/G: Christian Bioethics
- Sociology 2179A/B: Promotion of Community Health
- Sociology 2180A/B: Development of Health Inequalities
- Women’s Studies 2244: Women and Health
- Writing 3222F/G: Advanced Healthcare Communication

### Technical Elective List:

Some technical electives may not be offered in a given academic year. Consult the Department for accurate listing. Courses that do not appear on the list below require special permission from the Department.

### Biomedical Sciences Electives

- Biochemistry 3385A/B: Human Biochemistry
- Biochemistry 3386A/B: Clinical Biochemistry
- Biology 2382A/B: Cell Biology
- Biology 2581A/B: Genetics
- Chemistry 2213A/B: Organic Chemistry
- Chemistry 2283F/G: Organic Chemistry II
- Communication Sciences and Disorders 4417A/B: Hearing Science
- Health Science 2300A/B: Systemic Approach to Functional Anatomy
- Health Science 3300A/B: Anatomy of the Human Body
- Medical Science 4931F/G: Selected Topics in Medical Science
- Physiology 3140A/B: Cellular Physiology

*The official version of the academic calendar can be found at: www.westerncalendar.uwo.ca*
## Year 5

### Term A
- **BME 4400** Biomedical Engineering Research Thesis (1.5-credit course)
- **ES 4498F** Engineering Ethics, Sustainable Development and the Law
- **MME 4499** Mechanical Engineering Design Project
- One 0.5-credit BME technical elective
- One 0.5-credit MME technical elective

### Term B
- **BME 4400** Biomedical Engineering Research Thesis (1.5-credit course)
- **ES 3330B** Engineering Innovation I: New Venture Creation
- **MME 3334B** Thermodynamics II
- **MME 4499** Mechanical Engineering Design Project
- Two 0.5-credit BME technical electives
- One 0.5-credit MME technical elective

### Biomedical Engineering (BME) Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CBE 4421A/B</td>
<td>Intro to Biomaterials Engineering</td>
</tr>
<tr>
<td>Medical Biophysics 3507F/G</td>
<td>Analysis of Oxygen Transport</td>
</tr>
<tr>
<td>Medical Biophysics 3645A/B</td>
<td>Intro to Biomedical Optics</td>
</tr>
<tr>
<td>Medical Biophysics 4475A/B</td>
<td>Medical Imaging</td>
</tr>
<tr>
<td>Medical Biophysics 4535A/B</td>
<td>Hemodynamics</td>
</tr>
</tbody>
</table>

**Open Electives**

For the course credit designated as an “open elective”, students may select any course from the lists of: Biomedical Science electives; BME technical electives; MME technical electives; Healthcare non-technical electives; or Faculty of Engineering approved non-technical electives.